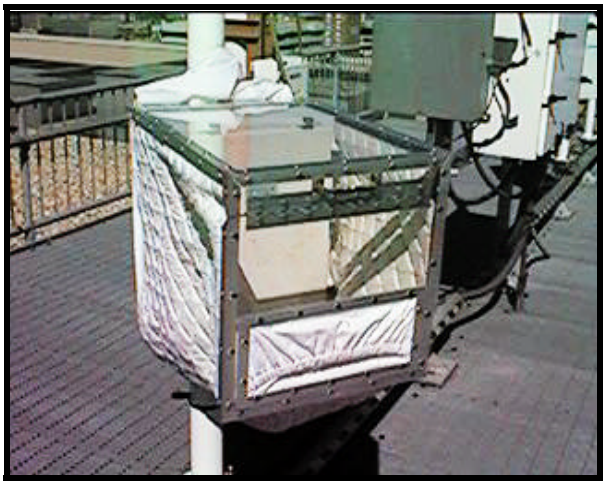
ASOS MAINTENANCE NOTE 35 (for Electronics Technicians)
Engineering Division
W/OSO321:WW



Assembly and mounting of the Heated Enclosure for ASOS Testing (HEAT) for cold and adverse weather maintenance on the ASOS Present Weather sensor (Light Emitting Diode Weather Identifier (LEDWI)).

GENERAL

This maintenance note provides the procedure for the assembly and mounting of the HEAT on the LEDWI for cold and adverse weather maintenance. This procedure primarily addresses the use of the HEAT with the LEDWI sensor, however, with minor procedural modifications, the HEAT may also be used on the temperature/dew point sensor (H083R or 1088) and visibility sensor (Vaisala FD12P).

The HEAT allows easy access to the electronics enclosure for calibration alignments during adverse weather conditions. The clear Lexan top permits visual access into the HEAT. The clear Lexan top and reflective white interior of the HEAT maximize the light inside the HEAT. The clear top also allows for an additional light source to be added externally as required.

PROCEDURE

Tools Required:

< HEAT Enclosure (S100-TE360)
< Heater (S100-TE361) [900 Watts, 120 VAC]
< Large screwdriver
< A/C Extension cord (20 feet minimum)

Assembly and mounting of the HEAT:

1. Using a large flat-tipped screwdriver, loosen and retract all of the door clips on the sensor's electronics enclosure with the exception of the center right-hand side door clip.

NOTE:
Ensure that the door remains closed at this time. Retention of heat within the electronics enclosure is the goal.

2. At the DCP, set the sensor's circuit breaker to the **OFF** position.

NOTE:

From this point, until the HEAT is completely installed, it is necessary to work quickly so as not to *cold soak* the electronics any more than necessary.

3. Open the Lexan/Fabric HEAT frame. With the large Lexan piece as the top, fold the single layer fabric back over the top and sides so that the Lexan is fully exposed at the rear.

4. With the HEAT fully open, place it over the entire electronics enclosure using the handle on the front to assist in this operation. The back edge of the top piece of Lexan will just slide under the bolts holding the electronics enclosure to the pipe mount frames.

NOTE:

This will hold the HEAT temporarily. It is essential that the HEAT be fastened securely.

5. Flare out the sides of the HEAT around the sensor's electronics enclosure. Route the extension cord for the heater/blower up through the tapered bottom of the HEAT enclosure along the sensor pole and lay the receptacle end inside.

6. Fold the single layer fabric of the HEAT enclosure over the top and sides of the frame and over the rear of the mounting pole, so that it covers the electronics enclosure completely and a portion of the mounting pole. Fasten the flaps together for a snug fit using the attached Velcro strips. Refer to Figure 2.

Figure 2 Bungee Cord Positioning and Rear Strapping

7. Using the shorter bungee cord (12 inches) insert one hook of the bungee cord into one hole in the rear on the Lexan top piece, wrap the bungee at least once around the sensor pole at a point directly above the electronics enclosure. Insert the hook into the other hole at the rear of the HEAT top piece. (The bungee should be tight, more turns around the pole may be necessary to take up any slack). Refer to Figure 3.

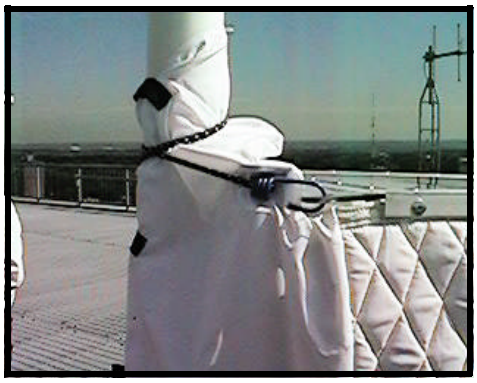


Figure 3 Bungee Cord Positioning (Side View)

NOTE:
If more stability is necessary, an additional bungee cord may be added (Step 8). However, do not use this 18 inch bungee cord as the primary fastener.

8. Using the longer (18 inch) bungee cord, hook one end into a hole at the top rear of the HEAT and bring the cord down behind the electronics enclosure and around in front of the mounting pole, and then back up behind the electronics enclosure and into the other hole at the rear of the HEAT. A loop around the pole may be needed for proper tension.

9. With the HEAT in place, reach through the hand opening, loosen and retract the remaining door clip. Open the electronics enclosure and prop the door open using the HEAT door brace. (One clip on the brace fastens to the bottom door lip and the other clip fastens to the door frame on the enclosure).

10. Slide the HEAT heater/blower frame over the top corner of the opened door so that the heater blows into the electronics enclosure (Refer to Figure 4).

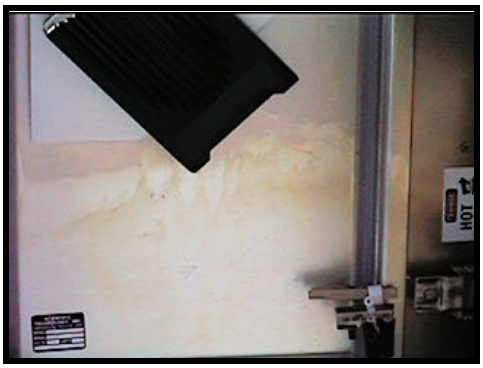


Figure 4 Heater/Blower and Thermoswitch Positioning

11. Attach the thermoswitch to the lower left-hand side of the electronics enclosure, using a clothes pin, so that the thermoswitch is in the direct path of the blowing air from the heater/blower (Refer to Figures 4 and 5). The casing of the thermoswitch is part of the temperature sensing mechanism and should not come in contact with the door frame or other enclosure surfaces during heater operation.

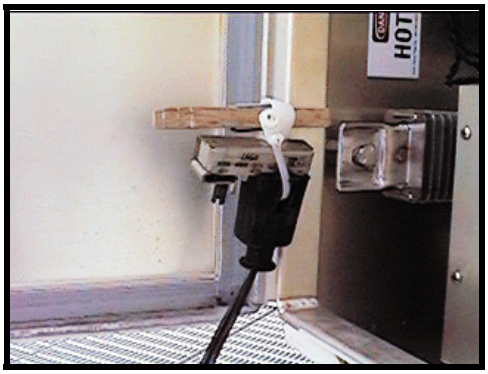


Figure 5 Thermoswitch Positioning

12. Plug the heater/blower power cord into the AC extension cord. The blower will turn on, however the heater will not be activated unless the temperature is below approximately 35° to 40°F. The blower should run continuously when power is applied, however, the heater cycles with the thermoswitch.

13. Inside the DCP, set the circuit breaker for the sensor to the **ON** position.

14. Allow approximately 30 minutes for the sensor's electronics enclosure to stabilize the temperature (up to an hour in extreme conditions). While the heater can bring the "general" temperature up in a short time, *it is important that the electronic components be thoroughly warm to be stable (not just warm on the surface). The target temperature is 35° to 40°F*.

Additional Information

The target temperature, inside the LEDWI electronics enclosure, is from 35° to 40°F. Any where within this range is acceptable. If the average temperature in the enclosure is not in this range, the thermoswitch can be adjusted by turning the brown screw on the thermoswitch in very small increments: clockwise to increase the temperature and counter-clockwise to decrease the temperature. One full turn will change the temperature by approximately 100°F.

15. Once the sensor's electronics have stabilized, proceed with the intended maintenance.

Disassembly of the HEAT:

1. Disconnect the extension cord from the heater/blower and remove the heater/blower assembly from inside the HEAT.

2. Remove the door brace, close and fasten the electronics enclosure door. All clips should be fastened at this time, if no further access to the electronics enclosure is needed.

3. Remove the extension cord from the tapered bottom of the HEAT.

4. While holding the HEAT, using the handle on the front, remove the bungee cord(s).

5. Unfasten all of the Velcro straps at the rear of the HEAT and pull the single layer fabric back over the HEAT.

6. Remove the Lexan/Fabric frame from the sensor's electronics enclosure.

7. Return all HEAT components back into the carrying case.

Packing Information

To ease entry of the HEAT frame assembly into the soft case and prevent tearing of the case, first fold the quilted and single layer fabric inward neatly, fold the Lexan frame pieces flat and use the long (18 inches) bungee cord around the frame to hold the pieces tightly together.

EFFECT ON OTHER INSTRUCTIONS
None.

REPORT MAINTENANCE ACTION
None.

Original Signed

John McNulty
Chief, Engineering Division

W/OSO321:WWeir:713-1835x129:
K:\OSO32\OSO321\Asos Temps\Asosmn35.h11
9/29/97:rev10/10/97:10/15/97: spellchecked:10/16/97:src